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The Effects of trust and relationship commitment on information sharing and alliance performance: evidence from “a company + farmers” in China

Shaoling Fu, Jiabao Lin*

College of Economics and Management, South China Agricultural University, Guangzhou 510642, (CHINA)

ABSTRACT

The purpose of the study is to explore how the farmers are willing to share the production information with the company in their alliance “a company + farmers” and whether information sharing enhances alliance performance or not. This research builds a theoretical model of the relationships among trust, relationship commitment, information sharing and alliance performance. Choosing the farmers cooperating with the company as respondents, we collected 462 questionnaires, and conducted empirical study on the relationships among trust, relationship commitment, information sharing and alliance performance using structural equation modeling. The empirical results show that trust has significant positive effects on relationship commitment and information sharing. Relationship commitment has a significant positive effect on information sharing and information sharing has a significant positive effect on alliance performance. To motivate farmers to share production information, agricultural companies need to keep trust and relationship commitment with farmers. Only then can the company available monitor the production process of agricultural products and thus improve the quality and safety of the products.

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KEYWORDS

“a company + farmers”;
Trust;
Relationship commitment;
Information sharing;
Alliance performance.

INTRODUCTION

The control of product quality and safety is the emphasis in the industrial and agricultural research and product food quality and safety has attracted more attention due to its special social attributes in China. The principal characters of modern agriculture and food industry are large-scale and high-efficiency. With the motivation of high profits, some agricultural firms betray their social responsibility and produce agricultural food ignor-

ing the health of the people, which adds to the risk of food quality and safety in China. Agricultural planting and breeding is the source of the food supply chain. Compared to agricultural production patterns of Europe, America and other developed countries, Chinese farmers, as a source of production, are characterized by the large number and scattered distribution and difficult to be managed. Due to high cost of drug residues and pesticide residues detection in China, it is not possible to test the agricultural products one by one, thus

the violation of farmers are hard to detect. Given that low violation cost of scattered farmers, they tend to use prohibited toxic pesticides and veterinary drugs, such as using feed containing clenbuterol in pig farming and adding malachite green in aquaculture. Thus it is very crucial for agricultural companies to control the information of production process of the agricultural food effectively and motivate farmers to share production information.

The business organization of “a company + farmers” is one of the effective models to enhance food quality and safety, which is a leading agricultural industrialization model in China. It is also known as “contract farming”, which means that farmers take charge of production and the company buys the products according to the contract, and in this relationship, farmers sign a legally binding sales contract with a company, which determines the parties’ rights and obligations^[1]. Taking “a company + farmers” in China as an example, We want to resolve the questions:

- (1) Does production information sharing enhance the alliance performance between farmers and the company in their cooperation?
- (2) Does trust and relationship commitment to the company promote the production information sharing and thus the alliance performance?

The purpose of the research is to explore how to make farmers share the production information with the company in their alliance and whether information sharing enhances alliance performance of the cooperation or not from the farmers’ perspective. We randomly select farmers in the cooperation with the agricultural company as respondents and finally obtain 462 valid responses. By using structural equation model, we conduct empirical study on the relationships between trust, relationship commitment, information sharing and alliance performance. The results have the theoretical and practical values for the success of the agricultural contract and also improve the food quality and safety in China.

LITERATURE REVIEW AND RESEARCH HYPOTHESIS

Alliance performance is a complicated concept and first put forward by Buchlin and Sengupta^[2]. The re-

search on alliance performance involves two aspects: one is the perspective of the alliance and the other is the perspective of the cooperative company. In this research, alliance performance is the benefits in the cooperation between an agricultural company and farmers. This research will take the second perspective to measure alliance performance, considering the economic factors and indicating that alliance performance is the measure of the results of cooperation, including income growth and cost reduction. Studies find that building a good partnership can forms more performance than acting alone^[3]. The mutual trust of partners can reduce transaction cost and risk, improve the response speed and increase alliance performance^[4,9]. Relationship commitment, as a important factor of partnership formation, positively affects alliance performance^[4,6,9-12]. Nevertheless, previous research also find that relationship commitment does not affect alliance performance effectively^[13]. Most scholars believe that information sharing not only can reduce the bullwhip effect, the risk of information distortion and improve the alliance performance, but also can effectively coordinate the relationship of the partners in the alliance, achieve long-term cooperation, make full use of their and partners’ strengths, and highly exert competitive advantages of the alliance. Chen et al.^[14] found that information sharing will reduce bullwhip effect which is due to inadequate information sharing between partners. Information sharing has a positive effect on the performance of supply chain^[15]. Ye and Xue^[16] suggest that information sharing positively affects on the operational performance of enterprises. However, information sharing is not always useful and the value of is small sometimes^[17]. The low level of information sharing has no significant impact on alliance performance^[18]. Studies do not have a unified conclusion about the relationships between information sharing and alliance performance. Therefore, we will examine whether information sharing positively affects alliance performance or not. we propose following hypotheses:

H1a Information sharing between farmers and the company has a positive impact on alliance performance of their cooperation

H1b The trust of farmer to the company has a positive impact on alliance performance of their cooperation

FULL PAPER

H1c Relationship commitment of farmers to the company has a positive impact on alliance performance of their cooperation

Information sharing between partners is complicated and the affecting factors of it involve a variety of internal and external aspects. Among them, partnership factors such as trust and relationship commitment have drawn attention of scholars. The closer relationship between partners, the more willing they are to share information. Long partnership positively affects cross-organization communication^[19]. Mutual trust is an important positive factor to the success of information sharing^[20]. Therefore, we propose following hypotheses:

H2a Farmers' trust to the company has a positive impact on information sharing

H2b Farmers' relationship commitment to the company has a positive impact on information sharing

There is a causal relationship between trust and relationship commitment, that trust is a prerequisite to fulfill relationship commitment. Trust is an antecedent of relationship commitment and the high level of trust is beneficial to the quality of relationship commitment. With a high degree of mutual trust, the two sides of the partnership will be stable and lasting and therefore relationship commitment will improve. Many scholars have given evidences that trust has positive effect on relationship commitment^[6,21]. Thus, we propose the following hypothesis:

H3 Trust positively affects relationship commitment

The theoretical model of this research is as following.

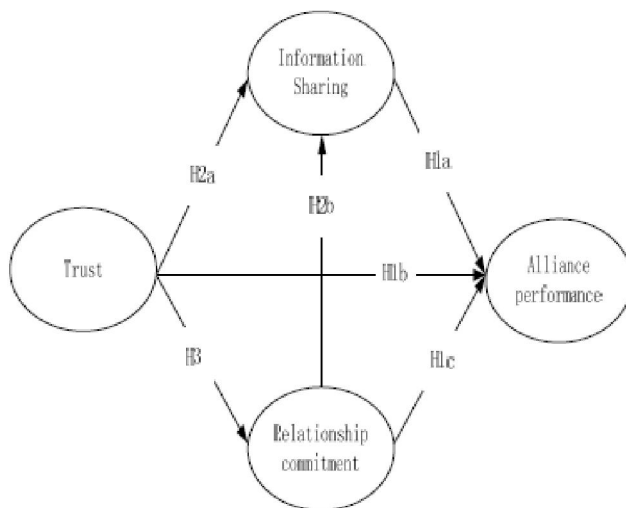


Figure 1 : Conceptual model and hypotheses

EMPIRICAL RESEARCH DESIGN

Variable design and data collection

To test the research model, we use a questionnaire survey. The questionnaire includes two aspects: the first part is the demographic characteristics, involving the stage of cooperation, the agricultural products and so on. The second part contains all the items for the variables of the empirical model. Respondents can choose from one (strongly disagree) to seven (strongly agree) using seven-point Likert scales. All the variables are measured by more than one item and adopted from existing literature, so content validity is guaranteed. The measurement sources of variables are shown in TABLE 1. Before the formal investigation, we selected 20 respondents for a questionnaire pretest, asking them for their opinion about the questionnaire, including whether the questions of the questionnaire are easy to understand or not, whether there is ambiguous item or not, and whether it reflects the actual situation of channel relationships or not. Based on their feedbacks, the questionnaire was modified to be more explicit. The survey was conducted with farmers who cooperate with companies on agricultural products and the samples were from Hainan Province and Guangdong Province in China. 600 questionnaires were distributed and 462 valid ones were collected, 141 from Guangdong Province, 321 from Hainan Province. Most of the farmers are young and middle aged and 62.4% is between 30 and 50. Male takes 79.2% of the total sample. In terms of education status, 79% received secondary or higher education. So the farmers are relatively well educated and able to understand the options of the questionnaire and fill in objectively and precisely. Most farmers (74.4%) have cooperated with companies for less than 5 years. The agricultural products cooperated are mainly vegetables, poultry and livestock, accounting for 29.2%, 25.8% and 19.3%, respectively.

Reliability and validity

Before hypothesis testing, we first analyze the reliability and validity of the instrument. Reliability reflects the stability and consistency of questionnaire and is measure by the Cronbach's alphas. For a questionnaire, Cronbach's alphas is 0.8 or more is preferable, 0.70 to 0.8 is still an acceptable range. For a sub-scale,

TABLE 1 : Reliability and convergent validity analysis of each factor

Variable	Measured item	Factor loading
Trust (Tr) (adapted from Ganesan^[23], Kwon and Suh^[24], Moberg and Speh^[25], Coulter and Coulter^[26]) Cronbach's alpha= 0.842 CR=0.889 AVE=0.617		
Tr1	According to past cooperation experience, I think the company can abide by the agreement and its promises	0.7313
Tr2	If the situation changes, the company will provide us with most help	0.7964
Tr3	During the transaction, I can trust the company is sincere and honest	0.8206
Tr4	I believe the company will put my interests into a very crucial place	0.8248
Tr5	I believe the company will take into account the possible impact on me when making major decisions	0.7497
Relationship commitment (Rc) (adapted from Zhao et al.^[27], Brown et al.^[28]): Cronbach's alpha= 0.770 CR=0.845 AVE=0.523		
Rc1	I believe the company regards us as their important member of the team, not just producer	0.7493
Rc2	I am very proud to tell others that I am one of the suppliers of the company	0.6773
Rc3	I agree with the company's way of management	0.7772
Rc4	I will continue to cooperate with the company in the future	0.7492
Rc5	I will not easily break the cooperation with the company in the future	0.6535
Information sharing (Is) (adapted from Li and Lin^[29], Zhou and Benton^[30]): Cronbach's alpha=0.888 CR=0.917 AVE=0.689		
Is1	I share with the company the plan and information of means of production (chemical fertilizer, pesticides, veterinary drugs and feed etc.)in the process of planting and breeding	0.7758
Is2	I share the inventory information of products with the company in the process of planting and breeding	0.7385
Is3	I monitor the production process together with the company	0.7861
Is4	I establish and maintain the performance appraisal system (such as the degree to safe usage of products)	0.8074
Is5	The company and I will improve the production process together o meet the needs of each other better.	0.8000
Alliance performance (Ap) (adapted from Bucklin and Sengupta^[2], Geyskens et al. ^[31]) Cronbach's alpha=0.801 CR=0.861 AVE=0.510		
Ap1	The cooperation increases my sales income	0.7275
Ap2	The cooperation enhances my productivity	0.7482
Ap3	There is fast return of investment if cooperating with the company	0.7055
Ap4	The cooperation improves the quality of the products	0.7645
Ap5	The cooperation reduces the production cost of the products	0.7094
Ap6	The cooperation reduces the inventory management cost of the products	0.6205

Cronbach's alphas is 0.70 or more would be best, 0.60 to 0.70 is still acceptable^[22]. In this research, we make 0.7 as a minimum standard of Cronbach's alphas. Validity includes convergent validity and discriminant validity. Convergent validity test includes two aspects. First in the confirmatory factor analysis (CFA), factor loading of each variable should be above 0.6. Second, the average variance (AVE) of each factor is calculated, if is above 0.5, indicating a high convergent validity of measured item. For discriminant validity, if the square root of AVE of each factor is greater than its correlation coefficient with other factors, showing that the measurement model has good discriminant validity.

Using SPSS 18.0 software calculated Cronbach's alphas of each variable and the result is shown in TABLE

1. The values of the Cronbach's alphas are above at 0.7, indicating high reliability of the scale of this research. And we conducted confirmatory analysis to the measurement model by using PLS-Graph software and the results are shown in TABLE 1. The standard loading of all factors are above 0.6, composite reliability (CR) are greater than 0.80, AVE are greater than 0.5, meaning that the scale has a good convergent validity.

The square root of AVE of each factor is greater than its correlation with other factors, indicating good discriminant validity. The results are shown in TABLE 2.

Hypothesis testing

We used PLS-Graph to make empirical test. Fig-

FULL PAPER

TABLE 2 : Analysis of discriminant validity

	Tr	Rc	Is	Ap
Tr	0.785			
Rc	0.634	0.723		
Is	0.616	0.483	0.782	
Ap	0.680	0.599	0.544	0.714

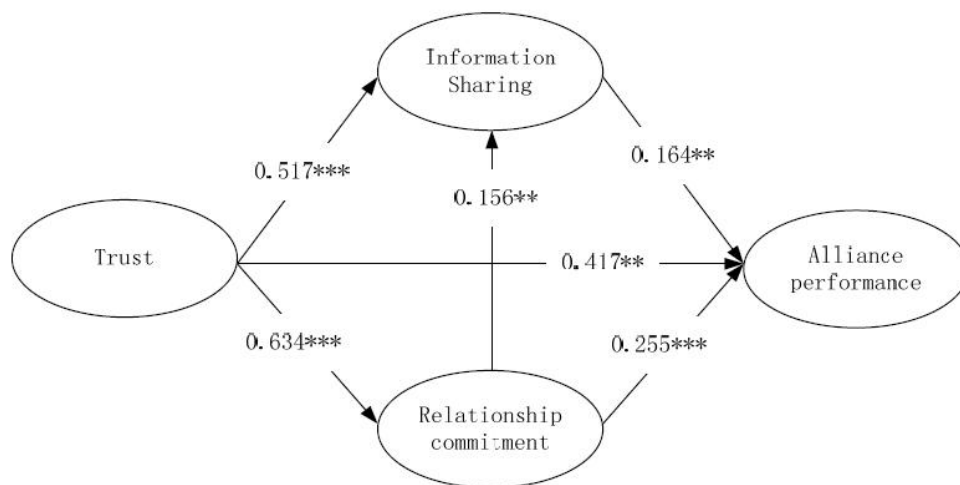
Note: Trust=Tr, Relationship commitment=Rc, Information sharing= Is, Alliance performance=Ap; Diagonal values represent the AVE; Non-diagonal values represent the values of the square of the correlation coefficient

Figure 2 shows the standardized path coefficient of each hypothesis relationship in the structure equation of trust, relationship commitment, information sharing and alliance performance. The R² value of relationship commitment, information sharing and alliance performance are 40.2%, 39.3%, 52.6% respectively, indicating that the model explained substantial variations in these variables. Hypothesis H1a, H1b, H1c, H2a, H2b and H3 are supported.

DISCUSSIONS

- (1) Information sharing has a significant positive impact on the alliance performance ($\beta=0.164, p<0.01$). Hypothesis H1a is supported, which indicates that if farmers share more food traceable production information with the company, the alliance performance will improve.
- (2) Farmers' trust to the company has a significant positive impact on information sharing in cooperation ($\beta=0.517, p<0.001$). Hypothesis H2a is supported.

- (3) Farmers' relationship commitment to the company has a significant positive impact on information sharing in cooperation ($\beta=0.156, p<0.01$). Hypothesis H2b is supported. This indicates that relationship commitment will contribute to improving the information sharing between trading partners. In Chinese rural areas, farmers' relationship commitment plays a very important role in social contact due to a closed environment.
- (4) Farmers' trust to the company positively affects alliance performance ($\beta=0.417, p<0.001$) and Relationship commitment ($\beta=0.634, p<0.001$). Hypothesis H1b and H3 are supported. Relationship commitment also has a significant positive effect on alliance performance ($\beta=0.255, p<0.001$). Hypothesis H1c is supported. This indicates that trust not only directly affects alliance performance, but also indirectly affects it through relationship commitment. In other words, trust can facilitate the recognition and internalization of values between partners and has very an important influence on a long-term orientation cooperation. Therefore, in order to maintain the alliance stability, agribusiness in China should build the mechanism of mutual trust with farmers, which can improve the level of relationship commitment between them, increase the both parties' profit.



Note: *** p <0.001, ** p <0.01

Figure 2 : Standard path coefficients

CONCLUSION

Based on the above empirical analysis, we can conclude management practice. If an agribusiness can make farmers trust and commit to it, information sharing between farmers and the company will be improved. Therefore, government departments are suggested to pay more attentions to the company's relational governance to farmers when assessing and selecting agribusinesses. In this way, first, if farmers are more stimulated to share the production information, the agricultural company will effectively control the agricultural production process. Second, it can make full use of the advantage of cooperation between the agribusiness and farmers, increase the farmers' profit, and promote agricultural industrialization of China.

Although we got some useful conclusions, there are several limitations that should be considered. This research used the data from Guangdong and Hainan Province in China, which limited the application of the model to other areas. The range of samples should be expanded to make the model more universal. We should examine the attributes and dimensions of trust and Relationship commitment. There is still no unified measurement of these variables. Besides, the variables are multi-dimensional, for instance, trust can be divided into capability trust and goodwill trust, and relationship commitment can be divided into normative relationship commitment and instrumental relationship commitment. It will be more convincing if we measure the variables with more items.

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FULL PAPER

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